



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY TIDEWATER REGIONAL OFFICE

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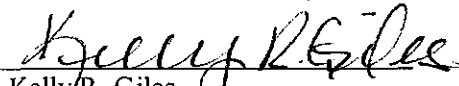
Francis L. Daniel
Regional Director

STATEMENT OF LEGAL AND FACTUAL BASIS

Hampton Roads Sanitation District - Virginia Initiative WWTP
4201 Powhatan Road, Norfolk, Virginia
Permit No. TRO - 60350

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, the Hampton Roads Sanitation District has applied for a Title V Operating Permit for its wastewater treatment facility with sludge incinerators at 4201 Powhatan Road, Norfolk, Virginia. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

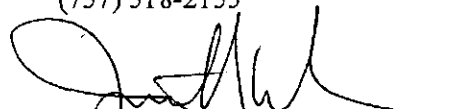
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11-2-10


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11/2/10

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Attachments: 02/13/73 Minor NSR Permit
06/29/99 Minor NSR Permit
40 CFR 61, Subpart E

I. FACILITY INFORMATION

Permittee

Hampton Roads Sanitation District
PO Box 5911
Virginia Beach, Virginia 23471

Facility

Virginia Initiative WWTP
4201 Powhatan Road
Norfolk, Virginia 23505

County-Plant Identification Number: 51-710-00197

A. SOURCE DESCRIPTION

NAICS Code: 221320 - Sewage Treatment Facilities
NAICS Code: 562219 - Non-hazardous Waste Treatment and Disposal
NAICS Code: 562213 - Solid waste combustors or incinerators, nonhazardous

The Hampton Roads Sanitation District (HRSD) is a political subdivision of the Commonwealth of Virginia and was established as a governmental instrument to provide for the public health and welfare by abating water pollution in the Hampton Roads area through the interception of wastewater outfalls and providing wastewater treatment plants. All of the HRSD treatment plants are interconnected for diverting wastewater flow to alternate treatment locations as the area's daily amount of generated wastewater flow varies along with the operational capabilities of each plant. The Virginia Initiative provides both primary and secondary municipal wastewater treatment for the Hampton Roads area, serving mainly Norfolk clients. The Virginia Initiative WWTP is rated to treat a design maximum average dry weather flow rate of 40 million gallon per day (mgd). The facility process units are grouped into four main functions: liquids management, solids handling, sludge incineration, and electrical generators.

Liquids management--all of the unit processes that treat the received wastewater prior to discharge to the Elizabeth River. These unit processes include the septic tank truck unloading station, headworks (influent screening and pumping)/grit removal chamber, aerobic reactors, primary and secondary clarification, and disinfection contact basin.

Solids handling--unit processes that collect and treat the screenings, and by-product solid materials from the liquid management section before it is sent to the sludge incinerator. These unit processes include the grit handling, raw and primary scum holding tank/concentrator, dewatering centrifuges; biosolids screw conveyors, foreign biosolids storage and handling, biosolids belt conveyors, and ash storage/disposal.

Sludge incineration--two identical multi-hearth incinerators are used to dispose of dewatered solids from the solids handling sections. Each incinerator has 10 hearths, a dedicated induced-draft fan, and air pollution control equipment for particulate matter consisting of a pre-cooler, venturi scrubber, and an impingement (tray) scrubber. The incinerators can fire either natural gas or distillate oil as supplemental fuel in the combustion process.

Electrical generators--three diesel engine electrical generator use distillate oil. The electrical generators are used mainly for occurrences of normal power lost, but can also upon request be used to reduce the electrical demand for the local power company.

The facility is a Title V major source of SO₂, CO and NO_x. This source is located in an attainment area for all pollutants. The facility is permitted under Minor NSR Permits issued on 02/13/73 and 06/29/99.

North Carolina is an affected state.

II. COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

III. EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
<i>Incinerators</i>							
I-1/I-2	2	Multi-hearth sludge incinerators (natural gas or distillate oil as backup), 1973	21 burners rated at 2.7 mmBtu/hr each per incinerator. 45 dry tons/day (sludge) per incinerator	Pre-cooler with Venturi scrubber followed by impingement (tray) scrubber (water only). ARCO Products Model No. VS-37-JS-2070, 1973. (Venturi replacement - TurboSonic, 2010.)	ISBR-1/ ISBR-2	PM/PM-10 (Odor)	02/13/1973 (State Only)
<i>Liquids Management</i>							
L-1	3a 3b	Liquids Management, 1943	40 mgd (dry) (wastewater)	Two stage packed tower scrubber (water plus NaOCl & NaOH). Ershings, 1990. Two stage system, 8300 cfm (biological tower followed by NaOH & NaOCl scrubber). BioWay & Daniel Co., 2008.	LSBR-1/ LSBR-2	(Odor)	N/A (State Only)
<i>Plant Electrical Generators</i>							
G-1 G-2 G-3	1a 1b 1c	Plant diesel engine electrical generators, 1991.	15.6 mmBtu/hr (1600 kW) each	N/A	N/A	N/A	06/29/1999

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.
(9 VAC 5-80-110 and Condition 4 of NSR permit issued on February 13, 1973 and Condition 2 of NSR permit issued on June 29, 1999)

IV. EMISSIONS INVENTORY

A copy of the 2009 annual emission update is attached. Emissions are summarized in the following tables.

2009 Criteria Pollutant Emissions in Tons/Year					
Emission Unit	VOC	CO	SO2	PM10	NOx
Incinerators	7.08	129.15	199.97	0.75	20.83
Liquids Management	12.76				
Generators	0.40	2.47	0.22	0.25	13.74
Total	20.24	131.62	200.19	1.00	34.57

V. EMISSION UNIT APPLICABLE REQUIREMENTS - Incinerators

A. Limitations

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-80-110	Permit Content
9 VAC 5-50-80	Standards for Visible Emissions
9 VAC 5-60-70	Designation of Emission Standards (Mercury)
9 VAC 5-40-750	Standards for Particulate Matter (Incinerators)

The following Federal Regulations that have specific emission requirements have been determined to be applicable:

40 CFR 61 Subpart E NESHAP-Mercury

See also NSR permit issued 02/13/1973. The VA new source standards for opacity (9 VAC 5-50-80) were not promulgated until 08/09/75 – some two years after the 02/13/0973 permit was issued. The introduction to the new source standards (9 VAC 5-50-10) specify that the standards apply to all new source activity that has been conducted after March 17, 1972. The new source opacity standards, 20% with no more than one six-minute period not to exceed 30%, are the resultant values from the permit and Regulations that should be used for compliance.

B. Monitoring

The following Virginia Administrative Codes that have specific monitoring requirements have been determined to be applicable:

9 VAC 5-80-110	Permit Content
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The following Federal Regulations that have specific monitoring requirements have been determined to be applicable:

40 CFR 64	Compliance Assurance Monitoring
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See also NSR permit issued 02/13/1973.

C. Testing

The following Virginia Administrative Codes that have specific testing requirements have been determined to be applicable:

9 VAC 5-80-110 Permit Content

The following Federal Regulations that have specific testing requirements have been determined to be applicable:

40 CFR 61 Subpart E NESHAP-Mercury

Subpart E, Para 61.53(d) and 61.54, only requires an annual test for Hg (by means of an incinerator stack test performed using Method 101A of 40 CFR 61, Appendix B; or the sludge must be tested for mercury levels using Method 105 of 40 CFR 61, Appendix B) if mercury emissions exceed 1,600 grams per 24-hour period.

The source conducted Hg testing during first Title V permit cycle (June 2000) and used Method 29 for 40 CFR 503 stack emissions compliance and emissions were 17 grams/day (near 1/200 of standard). During the second permit cycle, the source tested biosolids fed to the hearth furnaces using SW-846 Method 7471A. Hg emissions were determined using equivalent equations to those listed in 40 CFR 61.54. Results from those tests are as follows:

Year	Hg Emission Rate (gram/day)
2007	12
2008	13
2009	12

The source is required to test the sludge for Hg under 40 CFR 503 every 60 days.

Since all Hg past test results have been very low and with the 40 CFR 503 requirement of a continuing Hg sludge test requirement of every 60 days, no additional 40 CFR 61, Subpart E Hg compliance testing was required for this Title V renewal permit. Subpart E testing will be reviewed again at the next renewal.

See also NSR permit issued 02/13/1973.

D. Reporting

The permit includes reporting requirements for protocols, testing dates and results of stack tests conducted for PM or mercury and notifications for proposed plant changes that would potentially increase mercury emissions above 1,600 grams/24-hour period.

E. Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include fuel supplier certifications, sludge or stack test results for mercury emissions, PM stack test results with PM emission factors used, PM CAM records, VEE records, operating procedures, maintenance records, operator training records, and daily (monthly average) dry ton biosolids feed rate to active incinerator(s).

VI. EMISSION UNIT APPLICABLE REQUIREMENTS - Liquids Management

A. Limitations

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-80-110	Permit Content
9 VAC 5-50-80	Standards for Visible Emissions

The Liquids Management (L-1) shares the same odor scrubbing system with the Solids Handling (S-1) operations. Since the Solids Handling is a new source (constructed after 1972), the addition of the scrubbing system in 1998 to control fugitive odor emissions would have to meet the most stringent of opacity standards for the existing source, L-1 (20 - 60%) or the new source, S-1 (20 - 30%); which would be the new source levels of 20-30%.

VII. EMISSION UNIT APPLICABLE REQUIREMENTS - Electrical Generator

A. Limitations

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-80-110	Permit Content
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See also NSR permit issued 06/29/99.

B. Monitoring

The following Virginia Administrative Codes that have specific monitoring requirements have been determined to be applicable:

9 VAC 5-80-110	Permit Content
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See also NSR permit issued 06/29/99.

C. Recordkeeping

The following Virginia Administrative Codes that have specific recordkeeping requirements have been determined to be applicable:

9 VAC 5-80-110	Permit Content
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See also NSR permit issued 06/29/99.

D. Testing

The following Virginia Administrative Codes that have specific testing requirements have been determined to be applicable:

9 VAC 5-80-110 Permit Content

See also NSR permit issued 06/29/99.

E. Streamlined Requirements

The following conditions in the minor NSR permit of February 13, 1973, have been streamlined into the Title V permit:

- Condition 1: Progress reports for construction of incinerators were submitted until operations began. No further reporting is required.
- Condition 2: Stack testing of new incinerators was accomplished after operations began.
- Condition 3: Notifications of proposed stack testing was accomplished.
- Condition 4.1: Section IX of the Title V permit lists State-Only Enforcement issues. Odor is not only an issue for the incinerators but the entire facility (liquids management, solids handling, etc.). The source is complying with Article 5-2 for BACT on odor control for the incinerators by using the scrubber system to control PM on the incinerators. The CAM requirements for monitoring the incinerator scrubber system are a way to also monitor odor control for the incinerators. If PM emissions are minimized, odor is expected to be minimized.

The following conditions in the minor NSR permit of June 29, 1999 have been streamlined into the Title V permit by using the Title V boilerplate language on the same topic—NSR references were added to the Title V regulatory citations.

- Condition 1: Used Title V condition VIII.J
- Condition 2: Used Title V condition II
- Condition 12: Used Title V condition VIII.Q
- Condition 13: Used Title V condition VIII.H
- Condition 14: Used Title V condition VIII.O
- Condition 15: Used Title V condition VIII.V
- Condition 16: Used Title V condition VIII.T.2
- Condition 17: Used Title V condition VIII.L.1
- Condition 18: Used Title V condition VIII.S

The following conditions in the 40 CFR 61, Subpart E have been streamlined out of the Title V permit:

- Para 61.63 (d)(2)(i) and 61.54(a)(2): Initial testing of existing source. Source conducted this testing as required in the 1970's.
- Para 61.55(a): Monitoring. Not required as source has no emissions at the specified level to require more testing.

F. GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

1. Comments on General Conditions

a. Condition B. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement No. 3-2006".

This general condition cite(s) the Article(s) that follow(s):
Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80.	Application
9 VAC 5-80-140.	Permit Shield
9 VAC 5-80-150.	Action on Permit Applications

b. Condition F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition cites the sections that follow:

9 VAC 5-40-41.	Emissions Monitoring Procedures for Existing Sources
9 VAC 5-40-50.	Notification, Records and Reporting
9 VAC 5-50-50.	Notification, Records and Reporting

c. Condition J. Permit Modification

This general condition cites the sections that follow:

- 9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
- 9 VAC 5-80-190. Changes to Permits
- 9 VAC 5-80-260. Enforcement
- 9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
- 9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
- 9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

d. Condition U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

- 9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction
- 9 VAC 5-80-110. Permit Content

e. Condition Y. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

- 40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.
- 40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.
- 40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

- 9 VAC 5-60-70. Designated Emissions Standards
- 9 VAC 5-80-110. Permit Content

VIII. STATE ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5-40-290	Existing Source Standards for Hydrogen Sulfide
9 VAC 5-60-220	Existing Source Standards for Toxics
9 VAC 5-40-140	Existing Source Standards for Odor
9 VAC 5-50-140	New Source Standards for Odor
9 VAC 5-60-320	New Source Standards for Toxics

IX. INAPPLICABLE REQUIREMENTS

40 CFR 61, Subpart C: NESHAP for Beryllium. Subpart C was intended for a facility that uses beryllium or generates beryllium wastes and then disposes of it. Any beryllium found in the sludge is insignificant and incidental to the main purpose of the sludge incinerators.

40 CFR 60, Subpart O: NSPS for Sewage Treatment Plants. Subpart O was effective June 11, 1973 for new or modified sludge incinerators. This plant began construction before this date per the 02/13/1973 permit.

40 CFR 63, Subpart VVV: MACT for New and Reconstructed Major HAPs POTWs. This source is not a major source for HAPs.

40 CFR 60, Subpart Kb: NSPS for Volatile Organic Liquid Storage Vessels. This source does not store a VOC liquid product that is subject to the NSPS.

X. INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity 9 VAC 5-80-720 C)
ISU-CB-31	Emergency Generator	5-80-720 C.4	N/A	107 hp (80 kW)
ISU-CB-48	Portable Emergency Electrical Generator	5-80-720 C.1a		25,470 Btu/hr
ISU-T-49/50	Distillate Oil AST 275/265 gal each	5-80-720 B.2	VOC	N/A
ISU-T-33a/33b	Distillate Oil ASTs 20,000 gal each (installed after 1984)	5-80-720 B.2	VOC	N/A
ISU-T-42	Gasoline UST 1,000 gal	5-80-720 B.2	VOC	N/A
ISU-T-32a/32b/32c/32d	Distillate Oil ASTs 20,000 gal each (installed prior to 1984)	5-80-720 B.2	VOC	N/A
Solids Handling	Unit processes for solid by-products sent to incinerators	5-80-720 B.2	VOC	40 MGD (dry)

The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

XI. CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

XII. PUBLIC PARTICIPATION

The draft permit was placed on public notice in the Virginian-Pilot from September 17, 2010 to October 18, 2010.
Comments: None.

Draft and proposed permit sent to affected state (NC) on: September 17, 2010.

Draft and proposed permit emailed to EPA on: September 15, 2010. Comments: None.